DRAFT ENVIRONMENTAL ASSESSMENT

TRANSFER OF WESTLOPE CUTTHROAT TROUT TO SMITH CREEK (HIGHWOOD CREEK DRAINAGE)

I. Description of proposed action

A. Description of water body and action.

Receiving Water:

Name:	Smith Creek
Location:	47.4881°N, -110.6112°W
County:	Choteau

Donating Water:

Name:	North Fork Highwood Creek, Big Coulee Creek, and/or North Fork Little Belt Creek
Location:	47.4512°N, -110.5489°W, 47.4256°N, -110.5668°W, 47.4171°N, -110.6457°W
County:	Choteau

Montana Fish, Wildlife & Parks (FWP) proposes transferring non-hybridized eyed eggs and juvenile and adult westslope cutthroat trout (WCT) *(Oncorhynchus clarkii lewisi)* to currently fishless Smith Creek (Highwood Creek Drainage) from North Fork Highwood Creek, Big Coulee Creek, and/or North Fork Little Belt Creek. A fish barrier was constructed on private land near the confluence of Smith Creek and Highwood Creek in 2011. Non-native fishes were removed from Smith Creek upstream of the fish barrier in 2011; impacts of that action were disclosed and evaluated in a separate Environmental Assessment (comment period ended 4/15/2010) and Decision Notice dated 5/18/2010. Approximately 1 to 2.5 miles of Smith Creek is located on private property and 0.5 miles are located within the bounds of Lewis and Clark National Forest.

Eggs would be collected from spawning WCT by backpack electrofishing or trapping during spawning season over the next 2-5 years or for as long as deemed necessary. Ideally, eggs would be collected from five to ten females and spawned with ten to fifteen male WCT. Fertilized eggs would be hatched in Smith Creek using Remote Site Incubators. Juveniles and adults may also be transferred over the next 2-5 years or for as long as deemed necessary. No more than 10% of adult fish would be collected from any population in one year. No more than 20% of juvenile fish would be collected from any population in one year. WCT would be collected from one or two of the aforementioned WCT populations in the donating

waters. Mixing of individuals from two populations will prevent potential founder effects caused by low genetic diversity in donor populations.

Highwood Creek was part of the historical range of WCT until stocking efforts in the early 20th century. Currently, Highwood Creek supports non-hybridized WCT in two populations in less than 2 miles of stream. A concrete fish barrier was constructed on private land in 2011. The fish barrier was constructed to block non-native fish from moving upstream. Smith Creek, located in the Highwood Mountains, should support a robust population in 1.5-3 miles of stream. Populations of WCT in Big Coulee and North Fork Little Belt creeks are robust enough to allow transfer of juvenile and adult fish without any impact to the genetic integrity of the donor populations. We predict that Smith Creek would support close to the 2,500 minimum WCT population size recommended by Hilderbrand and Kershner (2000) for long term persistence (>100 years).

B. Need for Action:

WCT are ranked as S2 (imperiled because of rarity or because of other factors demonstrably making it very vulnerable to extinction throughout its range) by the Natural Heritage Network and the State of Montana. Non-hybridized WCT are thought to occupy about 8% of their historical range in the western United States (Shepard et al. 2003) and less than 4% of their historical range within the Highwood Creek Drainage (Moser 2010). Major threats to WCT include competition and hybridization with non-native rainbow trout (Leary et al. 1995; Hitt et al. 2003), competition with brook trout (Dunham 2003; Peterson et al. 2004), and isolation of remaining non-hybridized populations above barriers in short headwater sections of stream. These small isolated populations are at risk of extinction from catastrophic events (e.g. fire, drought) and may eventually suffer negative consequences of inbreeding (Wang et al. 2002). Translocations and transfers have been commonly used to augment established populations, create refuge populations, and re-establish historic populations (Stockwell and Leberg 2002). In addition, one of the restoration actions specifically referenced in the WCT Conservation Agreement (MFWP 2007) is translocation of non-hybridized populations into new habitats. In the event of a catastrophic loss of any of the donor populations, Smith Creek WCT could be used to re-found the populations, or vice-versa. Though populations will not be identical because of adaptations to the new environment in Smith Creek, replication should preserve some of the rare allelic diversity that is common in individual populations of WCT (Allendorf and Leary 1988).

II. Impacts of the proposed action

A review of the attached checklist on pages 7 and 8 and the following text addresses the potential impacts of this action.

A. Impacts to the Physical Environment

1) Terrestrial and Aquatic Habitat

The proposed project will involve transfer of WCT from one or two WCT populations (Highwood Mountains) to 1.5-3.0 miles of currently fishless habitat in Smith Creek. Live fish transfers and eyed eggs transfers have successfully established WCT cutthroat populations in the past in northcentral and southwest Montana. Several measures will be taken or have already been carried out to reduce and mitigate any potential impacts to the aquatic habitat. These include: disease testing of fish in the donor streams, amphibian surveys of the recipient stream, and invertebrate surveys of the recipient stream. The FWP wild fish transfer policy will be followed and WCT will not be transferred until approved by the FWP Fish Health Committee.

Disease testing: Disease samples were collected from donor streams in August of 2011. 60 whole brook trout were collected from North Fork Little Belt Creek and North Fork Highwood Creek. 60 WCT were collected from Big Coulee Creek. Results from these collections are pending and will be the basis for a FWP Fish Health Committee decision.

Genetic Analyses: Sixty-five genetic samples were collected from Big Coulee Creek from 1999-2003. All fish tested in Big Coulee Creek were non-hybridized. Forty-one genetic samples were collected from North Fork Little Belt Creek from 1981-2005. All fish tested in North Fork Little Belt Creek tested as non-hybridized. In addition, 50 genetic samples were collected from North Fork Little Belt and upper North Fork Highwood creek in 2011. Results from these samples are currently pending and transfers will not proceed until genetic purity is confirmed.

Aquatic Invertebrates and Amphibians: No amphibians have been collected or observed in Smith Creek.

Invertebrate populations prior to piscicide treatment survived in the presence of a robust population of brook trout and rainbow trout. Aquatic invertebrates in Smith Creek would not be impacted by a transfer of WCT.

2) Unique, endangered, fragile or limited environmental resources.

None identified.

B. Impacts to the Human Environment

1) Access to and Quality of Recreational Activities

Access to the portion of Smith Creek (approximately 0.5 miles of stream) on the Lewis and Clark National Forest is limited to overland travel with no trail associated with the drainage.

2) Demands on Government Services

This action will be undertaken by fisheries staff as part of normal field operations. Much of the work for this transfer has already been completed. It is anticipated that it will take two, three person fisheries crews about 3 to 4 days each to complete transfers.

III. Discussion of Reasonable Alternatives

1) No Action:
Smith Creek would remain fishless. Under this alternative, WCT in Big Coulee Creek, North Fork Little Belt and North Fork Highwood Creek would not be replicated and any unique adaptations would not be preserved.

2) Proposed Action:
Westslope cutthroat trout would be transferred from one or two of the following streams: North Fork Little Belt Creek, North Fork Highwood Creek, and/or Big Coulee Creek to Smith Creek (Highwood Creek Drainage). The total miles of stream inhabited by genetically unaltered WCT in the Highwood

Creek Drainage would increase from 2 miles to 3.5 miles (potentially 5 miles), a 133% increase. Two donor streams would be replicated, reducing the risk of extinction in the event of a catastrophic wildfire, disease, drought, or unforeseen hybridization with non-native fishes.

IV. Environmental Assessment Conclusion Section

1) Is an EIS required? No, the action is expected to have minor impacts to the human environment but provide beneficial impacts by reducing the risk of extinction of the donor westslope cutthroat trout populations in the Highwood Mountains.

References

Allendorf, F.W., and R.F. Leary. 1988. Conservation and distribution of genetic variation in a polytypic species, the cutthroat trout. Conservation Biology 2:170-184.

Dunham, J.B., S.B. Adams, R.E. Schroeter, and D.C. Novinger. 2003. Alien invasions in aquatic ecosystems: toward an understanding of brook trout invasions and potential impacts on inland cutthroat trout in western North America. Reviews in Fish Biology and Fisheries. 12: 373-391.

Hilderbrand, R.H. and J. L. Kershner. 2000. Conserving inland cutthroat trout in small streams: how much stream is enough? North American Journal of Fisheries Management 20:513-520.

Hitt, N.P., C.A. Frissell, C.C. Muhlfeld, and F.W. Allendorf. 2003. Spread of hybridization between native westslope cutthroat trout, *Oncorhynchus clarki lewisi*, and nonnative rainbow trout, *Oncorhynchus mykiss*. Canadian Journal of Fisheries and Aquatic Sciences. 60:1440-1451.

Leary, R. F., F. W. Allendorf and G. K. Sage. 1995. Hybridization and introgression between introduced and native fish. American Fisheries Society Symposium, American Fisheries Society, 15: 91-103.

Montana Department of Fish, Wildlife and Parks. 2007. Memorandum of understanding and conservation agreement for westslope cutthroat trout and Yellowstone cutthroat trout in Montana. Helena, Montana.

Moser, D. 2010. Northcentral Montana cooperative cutthroat restoration project; 2010 Annual Report. Montana Fish, Wildlife & Parks, Great Falls, Montana.

Peterson, D.P., K.D. Fausch, G.C. White. 2004. Population ecology of an invasion: effects of brook trout on native cutthroat trout. Ecological Applications. 14(3):754-772.

Shepard, B.B., B.E. May and W. Urie. 2003. Status of westslope cutthroat trout *(Oncorhynchus clarki lewisi)* in the United States: 2003. Westslope Cutthroat Interagency Conservation Team. 94 pp.

Stockwell, C.A. and P.L. Leberg. 2002. Ecological genetics and the translocation of native fishes: emerging experimental approaches. Western North American Naturalist. 62(1):32-38.

Wang, S., J.J Hard, and F. Utter. 2002. Salmonid inbreeding: a review. Reviews in Fish Biology and Fisheries. 11:301-319.

Montana Department of Fish, Wildlife and Parks
1420 E. 6th Ave P.O. Box 200701, Helena, MT 59620 -0701

Environmental Assessment Checklist

Project: Transfer of live fish and/ or eyed eggs from North Fork Little Belt Creek, North Fork Highwood Creek, and/or Big Coulee Creek to Smith Creek (Highwood Creek Drainage)
Division: Fish and Wildlife Division, Fisheries Bureau
Description of Project: Juvenile and adult WCT would be transferred by truck and foot. Eyed eggs would be outplanted using remote site incubators. The project would be completed in 2 to 5 years.

A. PHYSICAL ENVIRONMENT

1. LAND RESOURCES Will the proposed action result in:	IMPACT Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a. Soil instability or changes in geologic substructure?		X				
b. Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil which would reduce productivity or fertility?		X				
c. Destruction, covering or modification of any unique geologic or physical features?		X				
d. Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?		X				
e. Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard?		X				
2. WATER **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen or turbidity?		X				
b. Changes in drainage patterns or the rate and amount of surface runoff?		X				
c. Alteration of the course or magnitude of floodwater or other flows?		X				
d. Changes in the amount of surface water in any water body or creation of a new water body?		X				
e. Exposure of people or property to water related hazards such as flooding?		X				
f. Changes in the quality of groundwater?		X				
g. Changes in the quantity of groundwater?		X				
h. Increase in risk of contamination of surface or groundwater?		X				
i. Effects on any existing water right or reservation?		X				

j. Effects on other water users as a result of any alteration in surface or groundwater quality?		X				
k. Effects on other users as a result of any alteration in surface or groundwater quantity?		X				
l. Will the project affect a designated floodplain?		X				
m. Will the project result in any discharge that will affect federal or state water quality regulations? (Also see 2a)		X				
3. AIR **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Emission of air pollutants or deterioration of ambient air quality? (also see 13 (c))		X				
b. Creation of objectionable odors?		X				
c. Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally?		X				
d. Adverse effects on vegetation, including crops, due to increased emissions of pollutants?		X				
e. Will the project result in any discharge, which will conflict with federal or state air quality regulations?		X				
4. VEGETATION **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Changes in the diversity, productivity or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)?		X				
b. Alteration of a plant community?		X				
c. Adverse effects on any unique, rare, threatened, or endangered species?		X				
d. Reduction in acreage or productivity of any agricultural land?		X				
e. Establishment or spread of noxious weeds?		X				
f. Will the project affect wetlands, or prime and unique farmland?		X				
5. FISH/WILDLIFE **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Deterioration of critical fish or wildlife habitat?		X				
b. Changes in the diversity or abundance of game animals or bird species?		X				
c. Changes in the diversity or abundance of non-game species?			X			Pg. 3- See Aquatic Inverts. & Amphibs.
d. Introduction of new species into an area?				X Beneficial		Pg. 2 - See Need for Action
e. Creation of a barrier to the migration or movement of animals?		X				
f. Adverse effects on any unique, rare, threatened, or endangered species?		X				

g. Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?		X				
h. Will the project be performed in any area in which T&E species are present, and will the project affect any T&E species or their habitat? (Also see 5f)		X				
i. Will the project introduce or export any species not presently or historically occurring in the receiving location? (Also see 5d)		X				

HUMAN ENVIRONMENT

6. NOISE/ELECTRICAL EFFECTS **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Increases in existing noise levels?		X				
b. Exposure of people to severe or nuisance noise levels?		X				
c. Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property?		X				
d. Interference with radio or television reception and operation?		X				
7. LAND USE **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Alteration of or interference with the productivity or profitability of the existing land use of an area?		X				
b. Conflict with a designated natural area or area of unusual scientific or educational importance?		X				
c. Conflict with any existing land use whose presence would constrain or potentially prohibit the proposed action?		X				
d. Adverse effects on or relocation of residences?		X				
8. RISK/HEALTH HAZARDS **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Risk of an explosion or release of hazardous substances (including, but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or other forms of disruption?		X				
b. Affect an existing emergency response or emergency evacuation plan or create a need for a new plan?		X				
c. Creation of any human health hazard or potential hazard?		X				
d. Will any chemical toxicants be used?		X				

9. COMMUNITY IMPACT Will the proposed action result in:	IMPACT Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a. Alteration of the location, distribution, density, or growth rate of the human population of an area?		X				
b. Alteration of the social structure of a community?		X				
c. Alteration of the level or distribution of employment or community or personal income?		X				
d. Changes in industrial or commercial activity?		X				
e. Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?		X				
10. PUBLIC SERVICES/TAXES/UTILITIES **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Will the proposed action have an effect upon or result in a need for new or altered governmental services in any of the following areas: fire or police protection, schools, parks/recreational facilities, roads or other public maintenance, water supply, sewer or septic systems, solid waste disposal, health, or other governmental services? If any, specify: _____		X				
b. Will the proposed action have an effect upon the local or state tax base and revenues?		X				
c. Will the proposed action result in a need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?		X				
d. Will the proposed action result in increased used of any energy source?		X				
e. Define projected revenue sources		X				
f. Define projected maintenance costs		X				
11. AESTHETICS/RECREATION **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view?		X				
b. Alteration of the aesthetic character of a community or neighborhood?		X				
c. Alteration of the quality or quantity of recreational/tourism opportunities and settings? (Attach Tourism Report)		X				
d. Will any designated or proposed wild or scenic rivers, trails or wilderness areas be impacted? (Also see 11a, 11c)		X				
12. CULTURAL/HISTORICAL RESOURCES **Will the proposed action result in:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**

a. Destruction or alteration of any site, structure or object of prehistoric historic or paleontological importance?		X				
b. Physical change that would affect unique cultural values?		X				
c. Effects on existing religious or sacred uses of a site or area?		X				
d. Will the project affect historic or cultural resources?		X				
13. SUMMARY EVALUATION OF SIGNIFICANCE **Will the proposed action, considered as a whole:**	**IMPACT Unknown**	**None**	**Minor**	**Potentially Significant**	**Can Impact Be Mitigated**	**Comment Index**
a. Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources, which create a significant effect when considered together or in total.)		X				
b. Involve potential risks or adverse effects which are uncertain but extremely hazardous if they were to occur?		X				
c. Potentially conflict with the substantive requirements of any local, state, or federal law, regulation, standard or formal plan?		X				
d. Establish a precedent or likelihood that future actions with significant environmental impacts will be proposed?		X				
e. Generate substantial debate or controversy about the nature of the impacts that would be created?		X				
f. Is the project expected to have organized opposition or generate substantial public controversy? (Also see 13e)		X				
g. List any federal or state permits required.						

Potential Impacts on the Human Environment

Other groups or agencies contacted or which may have overlapping jurisdiction: United States Forest Service.

List of Individuals or groups contributing to this EA: George Liknes, FWP, Great Falls, MT;

List of all agencies and individuals who have been notified of this proposed transfer: Public notification via the FWP Web Site (http://fwp.mt.gov/news/publicNotices/).

Recommendation concerning preparation of EIS: No EIS Required. Action expected to be minor.

EA prepared by: David Moser, Fisheries Biologist, FWP, Great Falls, MT. Date: September 20, 2011
Comments will be accepted until: October 21, 2011.

Comments should be sent to: David Moser, 4600 Giant Springs Rd., Great Falls, MT 59405; dmoser@mt.gov.